



THE UNIVERSITY *of* EDINBURGH

## Edinburgh Research Explorer

### Secondary attachment and mental health in Pakistani and Scottish adolescents

**Citation for published version:**

Imran, S, Macbeth, A, Quayle, E & Chan, S 2020, 'Secondary attachment and mental health in Pakistani and Scottish adolescents: A moderated mediation model', *Psychology and Psychotherapy: Theory, Research and Practice*. <https://doi.org/10.1111/papt.12280>

**Digital Object Identifier (DOI):**

[10.1111/papt.12280](https://doi.org/10.1111/papt.12280)

**Link:**

[Link to publication record in Edinburgh Research Explorer](#)

**Document Version:**

Publisher's PDF, also known as Version of record

**Published In:**

Psychology and Psychotherapy: Theory, Research and Practice

**General rights**

Copyright for the publications made accessible via the Edinburgh Research Explorer is retained by the author(s) and / or other copyright owners and it is a condition of accessing these publications that users recognise and abide by the legal requirements associated with these rights.

**Take down policy**

The University of Edinburgh has made every reasonable effort to ensure that Edinburgh Research Explorer content complies with UK legislation. If you believe that the public display of this file breaches copyright please contact [openaccess@ed.ac.uk](mailto:openaccess@ed.ac.uk) providing details, and we will remove access to the work immediately and investigate your claim.





# Secondary attachment and mental health in Pakistani and Scottish adolescents: A moderated mediation model

Somia Imran\* , Angus MacBeth , Ethel Quayle<sup>†</sup>  and Stella W.Y. Chan<sup>†</sup> 

Department of Clinical Psychology, School of Health in Social Science, University of Edinburgh, UK

**Objectives.** Research into adolescent mental health has tended to focus on primary attachment relationships. However, the effect of secondary attachment relationships and the role of culture remain under-explored. This study examined the associations between primary attachment, secondary attachment, and coping strategies (task-focused, emotion-focused, and avoidant coping) with psychological well-being and psychological distress in adolescents across two cultural settings.

**Design.** A cross-sectional study.

**Method.** An identical test battery was used across two geographic sites in Pakistan ( $N = 510$ ; 12–18 years; 51.5% male; mean age = 14.50) and Scotland ( $N = 610$ ; 12–18 years; 53.6% male; mean age = 13.97). Associations were tested separately in each sample using moderated mediation modelling for the outcome variables: psychological well-being and psychological distress.

**Results.** For psychological well-being, all three coping strategies were significant partial mediators and secondary attachment was a significant moderator in both samples. Secondary attachment moderated the association between emotion-focused coping and psychological well-being in the Pakistani sample only. For psychological distress, task-focused coping was a significant full mediator in the Pakistani sample only. In contrast, for the Scottish sample, task-focused coping and emotion-focused coping were significant partial mediators. Secondary attachment's direct effect on psychological distress was significant in both samples. Secondary attachment also moderated the association between emotion-focused coping and psychological distress in the Pakistani sample only.

**Conclusions.** The cross-cultural evidence suggests that alongside primary attachment, it is important to target secondary attachment through coping strategies, in order to enhance psychological well-being and lessen psychological distress in adolescents.

---

*This is an open access article under the terms of the Creative Commons Attribution License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited.*

\*Correspondence should be addressed to Somia Imran, Department of Clinical Psychology, School of Health in Social Science, University of Edinburgh, Doorway 6, Medical Quad, Teviot Place, Edinburgh EH8 9AG UK (email: [simran@exseed.ed.ac.uk](mailto:simran@exseed.ed.ac.uk)).

<sup>†</sup>Joint last authors.

## Practitioner points

- Secondary attachment plays a different role from primary attachment in adolescents. Therefore, it is important to target both primary attachment and secondary attachment security to enhance psychological well-being and lessen psychological distress.
- Cross-cultural differences in coping suggest that differential strategies to target different coping dimensions may enhance adolescent well-being across cultures.
- These cross-cultural differences highlight the ethical importance of cultural sensitivity among clinicians working with adolescents globally.

Adolescent well-being is recognized as a key global mental health challenge (Camilletti, 2018). Meta-analytic data from 27 countries estimated that the prevalence of mental disorders in adolescents is 13.4% (Polanczyk, Salum, Sugaya, Caye, & Rohde, 2015), with depressive and anxiety symptoms comprising the most common indicators of adolescent psychological distress (Cohen, Andrews, Davis, & Rudolph, 2018). Accordingly, research into protective factors, including attachment, coping, and well-being, can help inform our understanding of these mental health challenges (Camilletti, 2018). Furthermore, cultural milieu represents an important factor influencing these protective factors (Tang, Tse, Davidson, & Cheng, 2018). For instance, the emphasis on autonomy in individualistic cultures encourages a greater focus on individual goals (Yeh, Arora, & Wu, 2006), while collectivist cultures emphasize interdependence to promote greater connectedness with others (Albert, Trommsdorff, & Mishra, 2007). This implies that adolescent development and mental health could be influenced by the impact of culture on these factors (Albert *et al.*, 2007). Furthermore, as global approaches to mental health promotion become more entrenched, scrutiny of cultural differences is critical to develop preventative and intervention strategies that could be adapted for individuals from different cultural backgrounds (Malti, Noam, Beelmann, & Sommer, 2016).

To date, despite the fact that the majority of the population in low- to middle-income countries (LMICs) such as South Asia are adolescents, there is a paucity of reliable data for this developmental period from these countries (The Global Burden of Disease, 2017). Importantly, while adolescents make up 38% of its total population, research on Pakistani adolescent development and mental health has only slowly emerged since the mid-1990s (Qidwai, Ishaque, Shah, & Rahim, 2010). Only limited research has simultaneously examined two independent samples of adolescents from high-income versus LMICs such as Pakistan (Khalid, Qadir, Chan, & Schwannauer, 2019). Notably, there is little research exploring protective and resilience factors in resource-restricted settings (Kieling & Rohde, 2012). Therefore, studies with meaningful representation from both high-income versus LMICs are much needed in order to proffer global mental health recommendations (Camilletti, 2018). The samples in this study from Pakistan and Scotland not only differ in terms of cultural dimensions of collectivism versus individualism (Shah & Amjad, 2011), but also represent higher versus LMICs (The World Bank List of Economics, 2018).

The current study examined direct and indirect associations between primary attachment, secondary attachment, coping, psychological well-being (autonomy, competence and relatedness), and psychological distress (depression and anxiety). This was guided by three theoretical frameworks: attachment theory, self-determination theory (SDT), and cognitive-motivational-relational theory.

## **Theoretical framework**

### *Attachment theory*

Attachment theory provides a framework for understanding the role caregiving figures play as buffers against psychological distress, with implications for enhancing psychological well-being across cultures (Li, Delvecchio, Miconi, Salcuni, & Di-Riso, 2014). Security within attachment relationships is regulated by patterns of individual help-seeking, and the attachment figures response to perceived attachment needs (Bartholomew & Horowitz, 1991). From a developmental perspective, attachment to parents (primary attachment) is postulated to form the basis for the child's development of beliefs about self and others (in terms of trust and worthiness of love and care), which in turn influence secondary attachment relationships in subsequent life (Ainsworth, 1989). Attachment research also indicates that during adolescence, individuals are more likely to direct their attachment needs towards secondary attachment figures, suggesting a shift in focus from primary to secondary attachments (Aikins, Howes, & Hamilton, 2009). Furthermore, the concept of 'earned-security' implies that individuals with insecure primary attachments may develop attachment security over time with the development of secure secondary attachment relationships (Moller, McCarthy, & Fouladi, 2002), itself suggesting a compensatory role for secondary attachment.

Research has indicated that the quality of attachment security varies across adolescence and that primary attachment is not necessarily related to later attachment (Koepke & Denissen, 2012). However, the unique role of secondary attachment in influencing mental health and well-being of adolescents has been under-explored. In particular, research exploring attachment with potential secondary attachment figures has generally considered a limited number of relationships such as media-figures (Giles & Maltby, 2004; Greene, Adams-Price, & Greene, 1990; Roberts, 2007), 'idols' (Cheung & Yue, 2012), secondary school advisors (Van-Ryzin, Carlson, & Sroufe, 2011), and teachers (Rosmidar, 2017). Given that secondary attachment preference may differ from individual to individual, it is therefore as yet unclear whether particular categories of relationship constitute meaningful secondary attachment figure/s for individual participants. Nor can any definitive conclusions can be drawn regarding the link between secondary attachment and mental health.

### *Self-determination theory*

The contribution of secondary attachment security towards adolescents' well-being can also be explained via SDT (Ryan & Deci, 2000). SDT proposes that psychological well-being in adolescence can be predicted by the degree to which three basic psychological needs are met: autonomy, competence, and relatedness (Adie, Duda, & Ntoumanis, 2008; Deci & Ryan, 2000; Deci *et al.*, 2006; Patrick, Knee, Lonsbary, & Canevello, 2007). If these needs are fulfilled with reference to a particular attachment figure, this may improve psychological well-being, suggesting that adolescents may be self-motivated to shift attachment security from primary attachment to those secondary attachment figures who can satisfy needs of autonomy, competence, and relatedness (La-Guardia, Ryan, Couchman, & Deci, 2000).

### *Cognitive-motivational-relational theory*

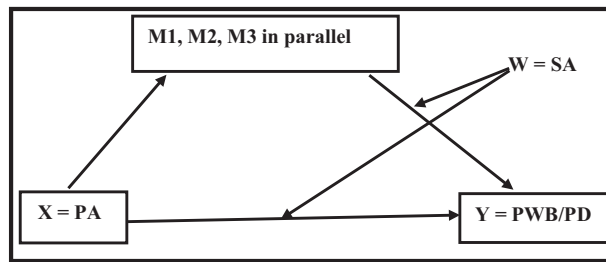
Cognitive-motivational-relational theory (CMRT: Folkman & Lazarus, 1985) provides a further theoretical underpinning for the role of secondary attachment relationships.

CMRT highlights the importance of motivation, emotions, and the assessment of available resources in relation to the developmental stage of adolescents (Compas, Connor-Smith, Saltzman, & Wadsworth, 2001). In adolescence, individual's 'coping repertoires' are determined by the degree to which psychological needs for autonomy, competence, and relatedness are met and are incidental to positive emotions and well-being (Aldwin, 2000). Thus, CMRT positions the shift towards secondary attachment figures as a coping mechanism to meet psychological needs (Compas *et al.*, 2001).

Finally, coping is also relevant to adolescent secondary attachment. Herein, coping refers to cognitive and behavioural responses that aim to minimize, control, or encounter demands or challenges from internal or/and external environments that exceed individuals' resources (Folkman & Lazarus, 1980), which themselves may mediate between attachment and distress (Glazebrook, Townsend, & Sayal, 2016). In particular, caregiver's responsiveness and sensitivity at times of distress help children to develop a sense of self-capacity in their own attempts to satisfy safety and comfort needs. Securely attached individuals are more likely to engage in adaptive coping, which is itself associated with enhanced well-being (Chakroborty & Banerjee, 2017; Shaver & Mikulincer, 2004). In contrast, individuals with insecure attachment are more likely to perceive the world as unpredictable or threatening, predicting less exploration, less perceived competence, and greater use of maladaptive coping (Wei, Heppner, & Mallinckrodt, 2003). This, in turn, could heighten experiencing more psychological distress entrenching lower or less adaptive psychological well-being (Guo, Tomson, Keller, & Söderqvist, 2018). Individuals may use task-focused coping, (actively focusing on the stressor/s in order to solve them) or emotion-focused coping, which is focusing on the emotional distress caused by the stressors (Lazarus, 1999). Avoidant coping can be used which includes social diversion or distraction (Lazarus & Folkman, 1984). Although task-focused coping actions are associated with positive mental health outcomes (Compas, Connor-Smith, & Jaser, 2004), there have also been contradictory results regarding the effects of emotion-focused and avoidant coping on psychological well-being (Yeh *et al.*, 2006), with culture taking an important mediating factor. Strategies such as problem solving are likely to be associated with individualistic societies while strategies of adaptation to the situation are encouraged in collectivist societies (Matsumoto, Yoo, & Nakagawa, 2008). This may suggest that cultural values such as individualism versus collectivism could affect coping.

## **Aims**

The aim of the current study was to investigate coping as a potential mediator of the link between primary attachment and psychological distress (depression and anxiety) and psychological well-being (autonomy, competence and relatedness), and to determine whether this mediation is moderated by secondary attachment. For moderation, two conditional effects were hypothesized: (1) the direct effect of primary attachment on both outcomes: psychological well-being and psychological distress will be moderated by secondary attachment and (2) the second stage moderated mediation, which implies that secondary attachment will moderate the effects of mediators (task-focused coping, emotion-focused coping, and avoidant coping) on both outcomes (Figure 1). Three coping subscales were considered as separate parallel mediators to examine their unique contribution to any mediation effects. It was expected that these links would vary across cultures.



**Figure 1.** Diagrammatic presentation of the moderated mediation model. Note. X = independent variable; PA = primary attachment; M1, M2, M3 = mediators; M1 = avoidant coping; M2 = emotion-focused coping; M3 = task-focused coping; W = moderator; SA = secondary attachment; Y = outcome; PWB = psychological well-being; PD = psychological distress.

## Method

**Design** – Cross-sectional study, using an identical test battery across two geographic sites in Pakistan and Scotland.

### Sample characteristics

In Pakistan ( $N = 510$ ; 12–18 years; 51.5% male), participants were recruited from three government schools in Rawalpindi (mean age 14.50;  $SD = 1.57$ ) with 98% overall response rate. In Scotland ( $N = 610$ ; 12–18 years; 53.6% male), recruitment was carried out in three state schools in Edinburgh (mean age = 13.97;  $SD = 1.56$ ) with 87% overall response rate.

Demographic characteristics of both samples are presented in Table 1.

### Measures

For the Pakistani sample, the Urdu translated version of Hospital Anxiety and Depression Scale by Mumford, Tareen, Bajwa, and Bhatti (1991) was used. Other measures, Experiences in Close Relationship-12, Three subscales (Autonomy, Competence, and Relatedness) of Ryff's Psychological Well-being Scale and Coping Inventory for Stressful Situations-21, were back translated into Urdu (Brislin, 1976) and validated with 400 adolescents in a separate study (available on request). A demographic questionnaire was included to measure gender, age, school grade, ethnicity, relationship status, religion, and family system. The Family Affluence Scale (FAS II; Currie, 2004;  $\alpha .57$ ; Boyce, Torsheim, Currie, & Zambon, 2006) was included to assess adolescents' socio-economic status. In terms of the composite FAS II score, a score of 0-3 indicates low affluence, a score of 4-6 indicates middle affluence, and a score of 7-9 represents high affluence.

### *The Experiences in Close Relationship-12 (ECR-12; Wei, Russell, Mallinckrodt, & Vogel, 2007)*

ECR-12 was used twice (with different instructions) to measure primary attachment and secondary attachment, respectively. Therefore, this study gave the option to participants to indicate whom they considered as their primary and secondary attachment figure/s. This methodological facet enabled us to explore the independent contribution of primary and secondary attachment in adolescents' mental health. Wei *et al.* (2007) developed this 12-item scale from Brennan, Clark, and Shaver (1998) 36-item ECR. The ECR-12 has two subscales: anxiety and avoidance. Participants rate each question on a 7-point Likert scale.

**Table 1.** Demographic characteristics of both samples

| Variables (categories)<br>Pakistani sample N = 510  |      | Variables (categories)<br>Scottish Sample N = 610 |      |
|---|------|---|------|
|   | %    |   | %    |
| <b>Grades/classes</b>                               |      |   |      |
| 7   | 8.8  | S1  | 15.6 |
| 8   | 17.1 | S2  | 34.9 |
| 9   | 44.7 | S3  | 11.0 |
| 10  | 29.4 | S4  | 18.4 |
|   |      | S5  | 12.1 |
|   |      | S6  | 8.0  |
| <b>Religion</b>                                     |      |   |      |
| Muslims   | 93.8 | No religion                                       | 73.1 |
| Christians  | 6.0  | Christians  | 19.0 |
|   |      | Muslims   | 4.8  |
|   |      | Hindus  | 1.3  |
|   |      | Sikhs   | 0.5  |
|   |      | Multi-faith groups                                | 1.3  |
| <b>Ethnicity</b>                                    |      |   |      |
| Punjabi   | 80.6 | White   | 90.6 |
| Sindhi  | 3.7  | South-Asian                                       | 6.66 |
| Balochi   | 1.4  | Chinese   | 0.98 |
| Pathans   | 8.6  | other ethnic groups                               | 1.96 |
| Other   | 5.7  |   |      |
| <b>Family system</b>                                |      |   |      |
| Joint families <sup>a</sup>                         | 26.1 | Living with both parents                          | 78.7 |
| Nuclear families <sup>b</sup>                       | 73.9 | Living with single parent                         | 16.7 |
|   |      | Living with others                                | 4.6  |
| <b>Living arrangement</b>                           |      |   |      |
| Living with both parent/same household              | 100  |   |      |
| <b>Relationship status</b>                          |      |   |      |
| Single <sup>c</sup>                                 | 85.3 | Single  | 79   |
| Engaged   | 14.7 | In a relationship                                 | 20.5 |
|   |      | Engaged.  | 0.5  |
| <b>Socio-economic status based on FAS II Scores</b> |      |   |      |
| Low   | 20.4 | Low   | 12.2 |
| Middle  | 61.6 | Middle  | 47.7 |
| High  | 18.0 | High  | 40.1 |
| <b>Secondary attachment</b>                         |      |   |      |
| Siblings  | 40   | Friends   | 59.0 |
| Friends   | 34.3 | Siblings  | 18.4 |
| Grandparents  | 17.8 | Grandparents,                                     | 10.8 |
| Fiancé  | 5.9  | Girlfriend/Boyfriend                              | 7.2  |
| Teachers  | 2.7  | Teachers  | 0.5  |
| Others  | 0    | Others  | 4.1  |

Notes. % = percentage; FAS II = Family Affluence Scale II; N = number of participants.

<sup>a</sup>Parent/s, children, and other relatives or grandparent/s.; <sup>b</sup>Parent/s and their children only.; <sup>c</sup>Neither married nor in a relationship.



**Table 2.** Bivariate correlations between the ECR-I2 total for PA total and SA total, PWB total and CISS-21 subscales and HADS total in both samples

|   |                 | 1             | 2             | 3             | 4             | 5            | 6             |
|---|-----------------|---------------|---------------|---------------|---------------|--------------|---------------|
| Variables in Pakistani sample (N = 510) |                 |               |               |               |               |              |               |
| 1                                       | ECR-I2 PA total | —             | —             | —             | —             | —            | —             |
| 2                                       | ECR-I2 SA total | <b>.29**</b>  | —             | —             | —             | —            | —             |
| 3                                       | PWB total       | <b>-.23**</b> | <b>-.27**</b> | —             | —             | —            | —             |
| 4                                       | CISS-Task       | <b>-.11**</b> | <b>-.11*</b>  | <b>.35**</b>  | —             | —            | —             |
| 5                                       | CISS-Emotion    | <b>.21**</b>  | .03           | <b>-.27**</b> | .05           | —            | —             |
| 6                                       | CISS-Avoidant   | <b>-.09*</b>  | -.03          | <b>.26**</b>  | <b>.23**</b>  | <b>.14**</b> | —             |
| 7                                       | HADS total      | <b>.25**</b>  | <b>.29**</b>  | <b>-.49**</b> | <b>-.28**</b> | <b>.32**</b> | <b>-.14**</b> |
| Variables in Scottish sample (N = 610)  |                 |               |               |               |               |              |               |
| 1                                       | ECR-I2 PA total | —             | —             | —             | —             | —            | —             |
| 2                                       | ECR-I2 SA total | <b>.79**</b>  | —             | —             | —             | —            | —             |
| 3                                       | PWB total       | <b>-.46**</b> | <b>-.31**</b> | —             | —             | —            | —             |
| 4                                       | CISS-Task       | <b>-.13**</b> | -.07          | <b>.24**</b>  | —             | —            | —             |
| 5                                       | CISS-Emotion    | <b>.19**</b>  | .04           | <b>-.46**</b> | <b>.32**</b>  | —            | —             |
| 6                                       | CISS-Avoidant   | <b>-.15**</b> | <b>-.22**</b> | <b>.17**</b>  | <b>.28**</b>  | <b>.81**</b> | —             |
| 7                                       | HADS total      | <b>.36**</b>  | <b>.24**</b>  | <b>-.57**</b> | -.07          | <b>.37**</b> | -.06          |

Note. N = number of participants; ECR = Experiences in Close Relationship Scale-I2; PA = Primary attachment; SA = Secondary attachment; PWB = Psychological well-being; CISS = Coping Inventory for Stressful Situations-21; CISS-Avoidant = Avoidant CISS; CISS-Emotion = Emotion-focused CISS; CISS-Task = Task-focused CISS; HADS = Hospital Anxiety and Depression Scale.

\*\*\* $p < .001$ ; \*\* $p < .01$ ; \* $p < .05$ . Values not bold are non-significant.

Higher scores on both subscales were used to measure insecure attachment orientation. Wei *et al.* (2007) found Cronbach's alphas .78 for anxiety and .84 for avoidance in their US student sample.

#### *The Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983)*

A composite score of HADS was used to measure psychological distress in terms of depression and anxiety symptoms. This is a 14-item scale with two subscales: depression and anxiety (7 items each). Participants were asked to rate each item on a 4-point Likert scale based on how they feel generally. Cronbach's  $\alpha$  for depression and anxiety subscales was reported to be .83 and .82, respectively (Bjelland, Dahl, Haug, & Neckelmann, 2002). It has been validated for adolescents (White, Leach, Sims, Atkinson, & Cottrell, 1999).

#### *The Psychological Well-being Scale (Ryff, 1989)*

Three subscales from this scale (Autonomy, Competence, and Relatedness) were used to measure psychological well-being. Each subscale has nine items, and participants were asked to indicate how much they agree/disagree on a 6-point Likert scale. High scores indicate higher well-being. The English version has sound psychometric properties with Cronbach's  $\alpha$  for Relatedness .81, for Autonomy .83, and .86 for Competence subscales (Ryff & Keyes, 1995). It has been validated for adolescents (Vescovelli, Albieri, & Ruini, 2014).



*The Coping Inventory for Stressful Situations-21 (CISS-21; Endler & Parker, 1990)*

This is a shortened version of CISS-48 and has 21 items with 3 subscales: task-focused, emotion-focused, and avoidant coping (7 items each). Participants rate each question on a 5-point Likert scale. Higher scores indicate a greater use of coping strategies (Endler & Parker, 1990). It is a sound psychometric instrument with Cronbach's  $\alpha$ : task-focused = .78–.87, emotion-focused = .78–.87, and avoidant coping = .70–.80 and has been validated for adolescents (Li, Liu, Hu, & Jin, 2017).

**Procedure**

Prior to the main data collection, a small pilot study was conducted with 15 adolescents to estimate the time duration taken to complete the questionnaires and any difficulties in understanding instructions while answering the questions. For the main parallel surveys, a letter/email outlining the broad aim and scope was sent out to the school heads in Rawalpindi and Edinburgh. Then, a detailed information sheet and parental opt-out consent forms were sent to parents of all adolescent students of the participating schools for both samples. On the day of data collection, adolescents with a signed opt-out parental consent form were not included. For Pakistani schools, data were collected in a library hall (25–30 min) in December 2016 and April 2017. In addition to parental consent, adolescent participants were also asked to complete a consent form prior to participation. After completion, respondents were debriefed orally. In Scotland, the data were collected during study skills and religious education classes in November 2016 and May 2017, using the similar procedures to the Pakistani sample.

**Ethical approval**

The ethical approval received from the University of Edinburgh, Fatima Jinnah Women University Rawalpindi, Pakistan, the local education authority in Pakistan, and the City of Edinburgh Council. The participants gave consent for their data to be used in the research.

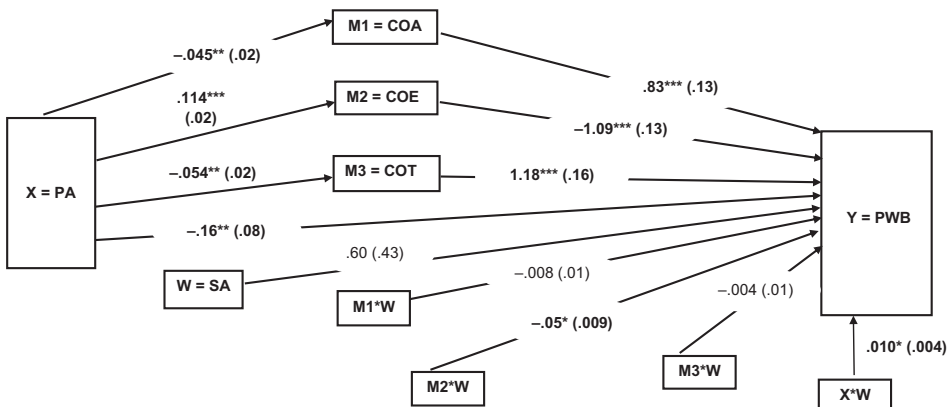
*Data analysis*

Following Fritz and MacKinnon (2007), a minimum sample of 405 participants was required for 0.8 power to detect an effect of 0.13 (medium effect size) with alpha 0.05. Both samples exceeded the minimum sample size of 405. Data were screened for multivariate normality, homoscedasticity, and multicollinearity. For outliers, Cook's distance, leverage, and Mahalanobis distance were examined too. Overall, no significant violation of assumptions was detected. There were no missing values as incomplete questionnaires ( $n = 45$ ) were excluded before the data entry. For all chosen measures except the CISS-21, total scores were used in analyses. Descriptive statistics, reliability, and correlations (Table 2) were calculated in SPSS (Statistical Package for the Social Sciences; version 21). Moderate to high Cronbach alphas (0.71–0.94) were found across the scales in both samples in this study (see Table 3). The moderated mediation models were tested using Process Macro, Model 15 (Hayes, 2013) using 5,000 bootstrap samples. A 95% bias-corrected confidence interval was used for the index of moderated mediation (Hayes, 2015). If zero resides within the confidence interval, then the effect is non-significant. Therefore, the final decisions about the significance of moderated mediation were based on this. Three levels for the moderator, secondary attachment, were used based on mean and plus/minus one standard deviation (*SD*) from the mean. For the

**Table 3.** Descriptive statistics of the ECR-I2 total for PA total, SA total, PWB total, CISS-21 subscales, and HADS total in both samples

| Variables                  | $\alpha$ | M      | SD    | Skewness | Kurtosis |
|----------------------------|----------|--------|-------|----------|----------|
| Pakistani sample $N = 510$ |          |        |       |          |          |
| ECR-I2 PA total            | .90      | 29.90  | 12.78 | 1.62     | 2.55     |
| ECR-I2 SA total            | .90      | 29.4   | 12.61 | 1.68     | 2.75     |
| PWB total                  | .94      | 108.77 | 24.72 | -0.57    | -0.20    |
| CISS Task-focused          | .88      | 23.82  | 6.12  | -0.24    | -0.71    |
| CISS Emotion-focused       | .89      | 20.00  | 6.91  | 0.41     | -0.57    |
| CISS-Avoidant              | .84      | 21.31  | 6.38  | -0.15    | -0.55    |
| HADS total                 | .88      | 26.12  | 6.97  | 0.71     | 0.59     |
| Scottish sample $N = 610$  |          |        |       |          |          |
| ECR-I2 PA total            | .77      | 32.21  | 10.36 | 0.23     | -0.66    |
| ECR-I2 SA total            | .77      | 14.92  | 5.94  | 0.50     | -0.20    |
| PWB total                  | .89      | 110.49 | 18.97 | -.18     | 0.21     |
| CISS Task-focused          | .71      | 20.32  | 4.91  | 0.20     | -0.18    |
| CISS Emotion-focused       | .80      | 19.62  | 6.02  | 0.20     | -0.50    |
| CISS-Avoidant              | .74      | 19.94  | 5.42  | 0.20     | -0.23    |
| HADS total                 | .84      | 28.10  | 7.21  | 0.33     | -0.36    |

Notes.  $N$  = number of participants;  $\alpha$  = Cronbach's alpha;  $M$  = mean;  $SD$  = standard deviation; ECR-I2 PA = Experiences in Close Relationship Scale for primary attachment; ECR-I2 SA = Experiences in Close Relationship Scale for secondary attachment; PWB = Psychological Well-being; CISS = Coping Inventory for Stressful Situations-21; HADS = Hospital Anxiety and Depression Scale. Reliability range = 0.7–0.8 acceptable, 0.8–0.9 good, and >0.90 excellent (George & Mallery, 2003).



**Figure 2.** Results of the moderated mediation model of primary attachment for psychological well-being through coping subscales ( $N = 510$ ). Note. Unstandardized regression coefficients are reported with standard errors in parentheses.  $***p < 0.001$ ,  $**p < 0.01$ ,  $*p < 0.05$ , COA = avoidant coping; COE = emotion-focused coping; COT = task-focused coping; PA = primary attachment; PWB = psychological well-being; SA = secondary attachment. Values not bold are non-significant.

moderator, higher scores on ECR-12 indicated greater attachment insecurity, with the lower (1  $SD$  below mean), middle (mean) and higher values (1  $SD$  above mean) indicating 'high', 'medium', and 'low' secondary attachment security, respectively.

**Table 4.** Moderated Mediation Model: Indirect effects of primary attachment on psychological well-being and psychological distress through emotion-focused coping moderated by secondary attachment ( $N = 510$ )

| Conditional indirect effects of secondary attachment for psychological well-being |           |          |     |                  |
|---|-----------|----------|-----|------------------|
| Mediator  | Condition | <i>b</i> | SE  | Bootstrap 95% CI |
| Emotion-focused coping  | Low       | −0.44    | .18 | −0.79 to −0.08   |
| Emotion-focused coping  | Middle    | −1.09    | .13 | −1.36 to −0.83   |
| Emotion-focused coping  | High      | −1.75    | .20 | −2.14 to −1.36   |

| Conditional indirect effects of secondary attachment for psychological distress |           |          |      |                  |
|---|-----------|----------|------|------------------|
| Mediator  | Condition | <i>b</i> | SE   | Bootstrap 95% CI |
| Emotion-focused coping  | Low       | 0.02     | .008 | 0.008 to 0.04    |
| Emotion-focused coping  | Middle    | 0.03     | .009 | 0.02 to 0.06     |
| Emotion-focused coping  | High      | 0.05     | .01  | 0.03 to 0.08     |

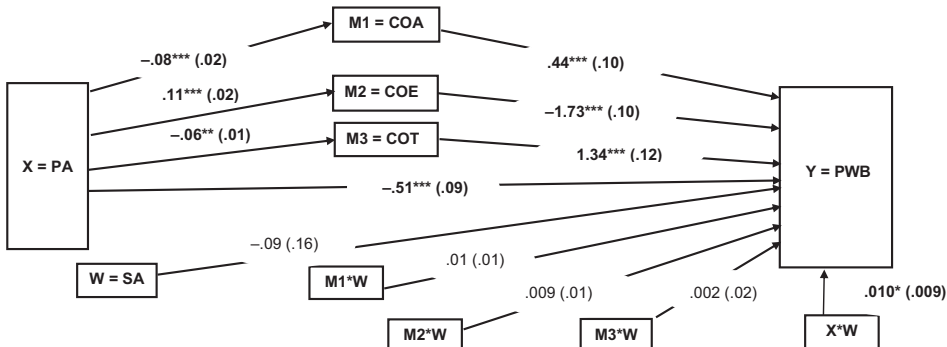
Note. Entries are unstandardized regression coefficients (*b*). Bootstrap sample = 5,000. Conditions for moderator = secondary attachment (SA) are the mean and plus/minus one standard deviation from the mean. *N* = number of participants; *SE* = standard error; *CI* = confidence interval. Estimates were calculated using the PROCESS macro; Model 15.

## Results

No significant correlations were found between the demographic variables of age and family affluence with the outcome variables, although a number of significant differences emerged in relation to gender. Consistent with previous studies (i.e., Van Droogenbroeck, Spruyt, & Keppens, 2018; Visani *et al.*, 2011), females reported higher psychological distress and lower psychological well-being.

### Psychological well-being

In the Pakistani sample, all three mediators were significant partial mediators and secondary attachment ( $b = .01$ ,  $SE = .004$ ,  $p < .05$ ) was the significant moderator for



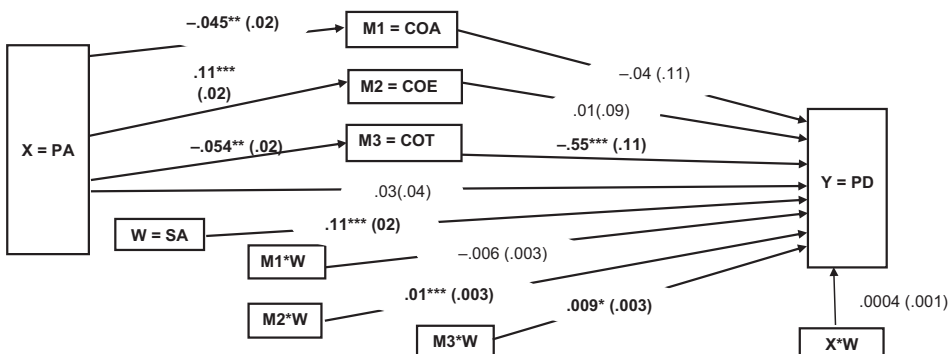
**Figure 3.** Results of the moderated mediation model of primary attachment for psychological well-being through coping subscales ( $N = 610$ ). Note. Unstandardized regression coefficients are reported with standard errors in parentheses.  $***p < 0.001$ ,  $**p < 0.01$ ,  $*p < 0.05$ . COA = avoidant coping; COE = emotion-focused coping; COT = task-focused coping; PA = primary attachment; PWB = psychological well-being; SA = secondary attachment. Values not bold are non-significant.

psychological well-being (Figure 2). Secondary attachment also moderated ( $b = -.05$ ,  $SE = .009$ ,  $p < .01$ ) the link between emotion-focused coping and psychological well-being. The effect of primary attachment on psychological well-being through emotion-focused coping was moderated by secondary attachment, and this effect became stronger with the levels of secondary attachment (Table 4). The conditional direct effects of primary attachment on psychological well-being for low ( $b = -.29$ ,  $SE = .10$ ,  $CI = -0.49$  to  $-0.09$ ) and middle levels of secondary attachment ( $b = -.16$ ,  $SE = .07$ ,  $CI = -0.30$  to  $-0.01$ ) were significant. Thus, the moderated mediation model for psychological well-being was supported.

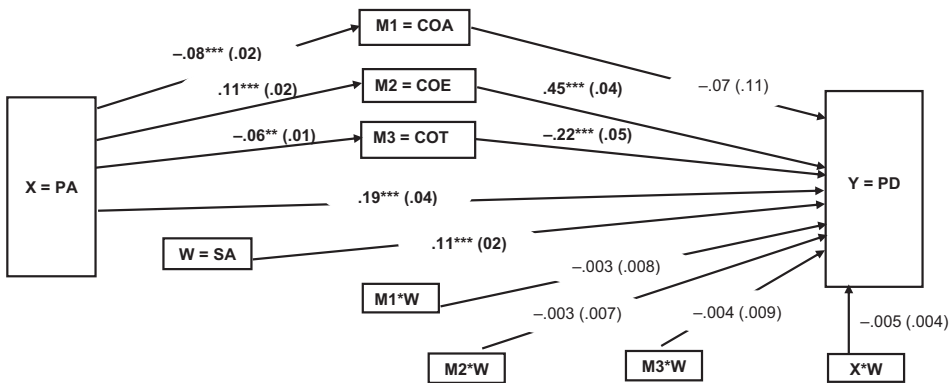
Similar to the Pakistani sample, all mediators were significant partial mediators and secondary attachment ( $b = .01$ ,  $SE = .009$ ,  $p < .05$ ) was the significant moderator for psychological well-being in the Scottish sample (Figure 3). The conditional direct effect of primary attachment on psychological well-being for low ( $b = -.29$ ,  $SE = .10$ ,  $CI = -0.49$  to  $-0.09$ ), middle ( $b = -.16$ ,  $SE = .07$ ,  $95\% CI = -0.30$  to  $-0.01$ ), and high level of secondary attachment ( $b = -.02$ ,  $SE = .09$ ,  $CI = -0.20$  to  $-0.15$ ) was significant. However, secondary attachment did not moderate the links between the mediators and psychological well-being. Here, the moderated mediation model was partially supported.

### Psychological distress

In the Pakistani sample, task-focused coping ( $b = -.55$ ,  $SE = .11$ ,  $p < .001$ ) was the significant full mediator, while secondary attachment's direct effect on psychological distress was significant ( $b = .11$ ,  $SE = .02$ ,  $p < .001$ ), which was non-significant for psychological well-being (Figure 4). The effect of primary attachment on psychological distress through emotion-focused coping was moderated by secondary attachment ( $b = .001$ ,  $SE = .0004$ ,  $95\% CI = 0.0005$  to  $0.002$ ), and this effect became stronger with the levels of secondary attachment (see above Table 4). However, these conditional effects for task-focused coping and avoidant coping were non-significant. Thus, the moderated mediation model was supported.



**Figure 4.** Results of the moderated mediation model of primary attachment for psychological distress through coping subscales ( $N = 510$ ). Note. Unstandardized regression coefficients are reported with standard errors in parentheses.  $***p < 0.001$ ,  $**p < 0.01$ ,  $*p < 0.05$ . COA = avoidant coping; COE = emotion-focused coping; COT = task-focused coping; PA = primary attachment; PD = psychological distress; SA = secondary attachment. Values not bold are non-significant.



**Figure 5.** Results of the moderated mediation model of primary attachment for psychological distress through coping subscales ( $N = 610$ ). Note. Unstandardized regression coefficients are reported with standard errors in parentheses.  $***p < 0.001$ ,  $**p < 0.01$ ,  $*p < 0.05$ . COA = avoidant coping; COE = emotion-focused coping; COT = task-focused coping; PA = primary attachment; PD = psychological distress; SA = secondary attachment. Values not bold are non-significant.

In the Scottish sample, emotion-focused coping ( $b = .45$ ,  $SE = .04$ ,  $p > .001$ ) and task-focused coping ( $b = -.22$ ,  $SE = .05$ ,  $p < .001$ ) were significant partial mediators while avoidant coping's effect ( $b = -.07$ ,  $SE = .05$ ,  $p > .05$ ) was non-significant on psychological distress (Figure 5). Similar to the Pakistani sample, secondary attachment's direct effect ( $b = .11$ ,  $SE = .02$ ,  $p < .001$ ) on psychological distress was significant but other conditional effects were non-significant. Overall, the moderated mediation model was partially supported.

## Discussion

The current study used a theoretically driven moderated mediation model to examine associations between primary attachment, secondary attachment, and coping strategies with psychological well-being and psychological distress in Pakistani and Scottish adolescent samples. This is the first cross-cultural study in which participants were asked to identify secondary attachment. The majority of Pakistani adolescents identified siblings while Scottish adolescents identified friends as the most significant secondary attachment figure (see Table 1). These findings suggest that secondary attachment preferences may vary across individuals. Findings also further highlight the importance of letting participants self-select the secondary attachment figure/s they consider significant rather than limiting secondary attachment figures a priori.

## Psychological well-being

### Mediation effects

In both samples, primary attachment influenced psychological well-being both directly and indirectly via adaptive coping. This is consistent with predictions from attachment theory that individuals derive adaptive coping resources from secure attachments, which unfold via consistent and responsive experiences with caregivers (Zimmer-Gembeck, Ducat, Clear, Mastro, & Van-Petegem, 2018). Positive attachment experiences with

caregivers enhance individuals perceived competence and representations of others as reliable (Mallinckrodt, 2000; Wei *et al.*, 2003). In our study, consistent with prior studies that used different indicators of psychological well-being (Abubakar, Alonso-Arbiol, Van de Vijver, Murugami, & Arasa, 2013; Gerónimo, Schoeps, & Montoya-Castilla, 2019), positive attachment experiences were associated with positive mental health outcomes. To emphasize the cultural aspects of these findings, a recent study of Chinese adolescents (Guo *et al.*, 2018) indicated that both maternal and paternal attachments were linked to psychological resilience, both directly and indirectly through enhanced task-focused coping and reduced emotion-focused coping. This finding is also consistent with prior studies from Western cultures (Lopez, Mathers, Ezzati, Jamison, & Murray, 2006; Wei *et al.*, 2003), reinforcing the universal role of attachment security in enhancing psychological well-being in adolescents, albeit via adaptive coping.

*Moderation effects.* With regard to moderation effects, for the first conditional effect, secondary attachment moderated the relationship between primary attachment and psychological well-being in both samples. As such, the negative effect of primary attachment on psychological well-being decreases with higher levels of secondary attachment security. This suggests that although insecure primary attachment contributes to reduced psychological well-being, secondary attachment security may buffer the negative impact of primary attachment insecurity on adolescents' psychological well-being. This is congruent with theoretical predictions and prior research on the compensatory role of secondary attachment (Shirvanian & Michael, 2017). Our finding also supports the concept of earned security (Moller *et al.*, 2002) that secure secondary attachment buffers the effects of insecure primary attachment. The similar findings for secondary attachment across both Pakistani and Scottish adolescent samples highlight the important role of secondary attachment across cultures, particularly at this critical developmental stage when individuals are expanding their interpersonal relational networks beyond primary attachments (Aikins *et al.*, 2009; Allen, 2008).

For the second conditional effect (second stage moderated mediation), secondary attachment moderated the relationship between emotion-focused coping and psychological well-being, albeit only in the Pakistani sample. This suggests that primary attachment insecurity leads to more emotion-focused coping, which in turns negatively affects psychological well-being but that this effect is dependent on levels of secondary attachment. Therefore, at least in the Pakistani context, it could be that secondary attachment security reduces the negative impact of insecure primary attachment through the mechanism of emotion-focused coping. Prior research indicates that a lack of emotional support from attachment figures predicts higher depression and anxiety symptoms (Pereira, Barros, Mendonça, & Muris, 2014; Van Roekel, Engels, Verhagen, Goossens, & Scholte, 2011). Correspondingly, the present finding in the Pakistani sample supports a theoretical claim from CMRT that turning towards secondary attachment can be a subsequent coping strategy after cognitive appraisal of the available emotional and social support in adolescence (Aldwin, 2007; La-Guardia & Patrick, 2008). This suggests that enhancing adolescents' secondary attachment security may reduce the negative effect of emotion-focused coping on psychological well-being. The absence of this mechanism in the Scottish sample points to the cultural differences in secondary attachment relationships. Further, it has important intervention implications, as targeting coping strategies for enhancing psychological well-being via secondary attachment relationships may be more feasible in the context of youth mental health, as compared to

seeking to change the quality of primary attachment relationship (Bowlby, 1982; Carr, Colthurst, Coyle, & Elliott, 2013). Finally, the current study examined psychological well-being in terms of autonomy, competence, and relatedness, thus consistent with the SDT; these results support the unique contribution of secondary attachment to meet basic psychological needs in adolescence (Carr *et al.*, 2013; Ntoumanis, Edmunds, & Duda, 2009).

### **Psychological distress**

#### *Mediation effects*

In the Pakistani sample, reduced task-focused coping fully mediated the effect of primary attachment insecurity on psychological distress. This indicated that task-focused coping plays an important role in the relationship between insecure primary attachment with psychological distress. These findings are comparable to Indian findings (Shaheen & Alam, 2010), whereby the association of task-focused coping with psychological distress was significant, but its relationship with emotion-focused coping was non-significant. In traditionally collectivist countries such as India and Pakistan, emotion-focused strategies such as spending some time in seeking and giving emotional support before finding a solution to the problem are widely practised. Consequently, there is the possibility that in these cultures emotion-focused coping is not linked to psychological distress, unlike in individualistic cultural settings. Together, these results are aligned with studies across cultures (Compas *et al.*, 2004; Guo *et al.*, 2018) in terms of highlighting the importance of developing interventions targeting task-focused coping strategies in adolescents.

By contrast, in the Scottish sample, task-focused coping and emotion-focused coping partially mediated the relationship between primary attachment and psychological distress; the effect of avoidant coping was non-significant. This suggests that, in the Scottish sample, the effect of primary attachment insecurity on psychological distress is more likely through enhanced emotion-focused coping and reduced task-focused coping and supports the dichotomy used in coping research (Holt, Hoar, & Fraser, 2005). As such, differences in coping across Pakistani and Scottish samples support a cross-cultural approach to differences in coping (Glazer, 2006; Matsumoto *et al.*, 2008).

#### *Moderation effects*

Regarding the first conditional effect, secondary attachment did not moderate the relationship between primary attachment and psychological distress; instead, secondary attachment's direct effect on psychological distress was significant across both samples. In contrast, for psychological well-being, secondary attachment moderated the direct link between primary attachment and psychological well-being. This suggests that insecure secondary attachment may constitute a risk factor for psychological distress in adolescents. Like the previous results, these findings are also consistent across two independent cultural samples. Nevertheless, future research should consider other indicators of psychological well-being and psychological distress to explore these associations across cultures.

For the second conditional effect (second stage moderated mediation), secondary attachment moderated the path between emotion-focused coping and psychological distress, but only in the Pakistani sample. Although the relationship between emotion-focused and psychological distress was not significant, its interaction effect with



secondary attachment was significant on psychological distress. These results demonstrate that both emotion-focused coping and secondary attachment insecurity contribute to adolescent psychological distress. One explanation for this finding could be that attachment with parents (primary attachment) is likely to be more obedience-oriented while with siblings or friends (secondary attachment) more emotionally close relationship is expected within a Pakistani context (Khalid, Qadir, Chan, & Schwannauer, 2017). This suggests that targeting adolescent secondary attachment security could reduce the influence of emotion-focused coping on psychological distress.

Considered together, the current study's results highlight a network of unique links between primary attachment and secondary attachment with different coping dimensions, which in turn are associated with psychological well-being and psychological distress in adolescents across cultures. Therefore, it emphasizes that different strategies to target different coping dimensions are required for enhancing adolescent well-being across cultures. Furthermore, overall analyses from the current study showed differential patterns of relationships between our psychological mechanisms on psychological well-being and psychological distress. These findings are consistent with a dual continuum global mental health approach whereby mental health and well-being represent two distinct but correlated dimensions. Consequently, considering both as outcome variables will help policy makers and professionals to improve targeting of well-being enhancing strategies in adolescents (Guo *et al.*, 2018).

### **Limitations**

As the current study used a cross-sectional design, future longitudinal studies will be needed to establish causal links between these variables. Data were collected from an urban community population, and as such, findings may not be directly applicable to rural/clinical samples. The use of self-report measures may have introduced response bias. The measures used were screening tools; diagnostic measures are suggested for future research. For assessment of young people internalizing symptoms such as depression and anxiety, self-reports are considered more valid. Future studies may employ multiple informant approaches such as parent, teachers, or siblings' reports (Holmbeck, Li, Schurman, Friedman, & Coakley, 2002).

### **Conclusions**

This study provides meaningful data on adolescents from both high-income and lower-middle-income settings as well as individualistic versus collectivist societies. First, it helps advance our theoretical understanding of how primary attachment and secondary attachment are linked and to identify their independent and combined role in adolescent mental health. It supports the position of secondary attachment as unique from primary attachment. Therefore, alongside primary attachment, it is important to target secondary attachment security to enhance psychological well-being and lessen psychological distress. The theoretical foundation of our study (attachment theory, SDT, and CMRT) provides a novel framework for understanding the unique direct and indirect links between attachment relationships and coping with mental health outcomes. This has important implications for intervention and treatment for diverse cultural settings. The cross-cultural differences also highlight the ethical importance of cultural sensitivity among clinicians contributing to global approaches to adolescent mental health promotion.

## Acknowledgements

The College Research Awards at the University of Edinburgh supported this research. The authors thank the ethics committee of Fatima Jinnah Women University Rawalpindi, Pakistan, and all the study participants.

## Conflicts of interest

All authors declare no conflict of interest.

## Author contributions

Somia Imran, PhD (Conceptualization; Data curation; Formal analysis; Funding acquisition; Investigation; Methodology; Project administration; Resources; Writing – original draft) Angus MacBeth (Supervision; Visualization; Writing – review & editing) Ethel Quayle (Supervision; Writing – review & editing) Stella W.Y. Chan (Supervision; Writing – review & editing)

## Data non-availability statement

Reasons for exemption from the data sharing policy include the following: (1) The confidentiality and informed consent of participants are compromised. (2) Legal rights concerning proprietary data preclude their release/ethical issues of anonymity.

## References

- Abubakar, A., Alonso-Arbiol, I., Van de Vijver, F., Murugami, M. L., & Arasa, J. (2013). Attachment and psychological well-being among adolescents with and without disabilities in Kenya: The mediating role of identity formation. *Journal of Adolescence*, 36, 849–857. <https://doi.org/10.1016/j.adolescence.2013.05.006>
- Adie, J., Duda, J., & Ntoumanis, N. (2008). Autonomy support, basic need satisfaction and the optimal functioning of adult male and female sport participants: A test of basic needs theory. *Motivation and Emotion*, 4, 189–199. <https://doi.org/10.1007/s11031-008-9095-z>
- Aikins, J., Howes, C., & Hamilton, C. (2009). Attachment stability and the emergence of unresolved representations during adolescence. *Attachment & Human Development*, 11, 491–512. <https://doi.org/10.1080/14616730903017019>
- Ainsworth, M. S. (1989). Attachments beyond infancy. *American Psychologist*, 44(4), 709–715. <https://doi.org/10.1037/0003-066X.44.4.709>
- Albert, I., Trommsdorff, G., & Mishra, R. (2007). Parenting and adolescent attachment in India and Germany. First publ. In: G. Zheng (Eds.), *Perspectives and progress in contemporary cross-cultural psychology* (pp. 97–108). Beijing, China: Light Industry.
- Aldwin, C. M. (2000). *Stress, coping, and development: An integrative perspective*. New York, NY: The Guilford Press.
- Aldwin, C. M. (2007). *Stress, coping, and development: An integrative perspective*. New York, NY: The Guilford Press.
- Allen, J. P. (2008). The attachment system in adolescence. In J. Cassidy, & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (2nd ed., pp. 419–435). New York, NY: Guilford.
- Bartholomew, K., & Horowitz, L. M. (1991). Attachment styles among young adults: A test of a four-category model. *Journal of Personality and Social Psychology*, 61, 226–244. <https://doi.org/10.1037/0022-3514.61.2.226>

- Bjelland, I., Dahl, A. A., Haug, T. T., & Neckelmann, D. (2002). The validity of the Hospital Anxiety and Depression Scale. An updated literature review. *Journal of Psychosomatic Research*, 52(2), 69–77. [https://doi.org/10.1016/S0022-3999\(01\)00296-3](https://doi.org/10.1016/S0022-3999(01)00296-3)
- Bowlby, J. (1982). Attachment and loss: Retrospect and prospect. *American Journal of Orthopsychiatry*, 52, 664. <https://doi.org/10.1111/j.1939-0025.1982.tb01456.x>
- Boyce, W., Torsheim, T., Currie, C., & Zambon, A. (2006). The family affluence scale as a measure of national wealth: Validation of an adolescent self-report measure. *Social Indicators Research*, 78, 473–487. <https://doi.org/10.1007/s11205-005-1607-6>
- Brennan, K. A., Clark, C. L., & Shaver, P. R. (1998). Self-report measurement of adult attachment: An integrative overview. In J. A. Simpson & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 46–76). New York, NY: Guilford.
- Brislin, R. W. (1976). Comparative research methodology: Cross-cultural studies. *International Journal of Psychology*, 11(3), 215–229. <https://doi.org/10.1080/00207597608247359>
- Camilletti, E. (2018). *Realizing an Enabling Environment for Adolescent Well-being: An inventory of laws and policies for adolescents in South Asia*. Florence: UNICEF Office of Research – Innocenti.
- Carr, S., Colthurst, K., Coyle, M., & Elliott, D. (2013). Attachment dimensions as predictors of mental health and psychosocial well-being in the transition to university. *European Journal of Psychology of Education*, 28(2), 157–172. <https://doi.org/10.1007/s10212-012-0106-9>
- Chakroborty, A., & Banerjee, M. (2017). Assessment impact of mother, father and peer attachment on coping of young adolescents. *International Journal of Indian Psychology*, 4(4). <https://doi.org/10.25215/0404.064>
- Cheung, C., & Yue, X. D. (2012). Idol worship as compensation for parental absence. *International Journal of Adolescence and Youth*, 17(1), 35–46. <https://doi.org/10.1080/02673843.2011.649399>
- Cohen, J., Andrews, R., Davis, M., & Rudolph, D. (2018). Anxiety and depression during childhood and adolescence: Testing theoretical models of continuity and discontinuity. *Journal of Abnormal Child Psychology*, 46, 1295–1308. <https://doi.org/10.1007/s10802-017-0370-x>
- Compas, B. E., Connor-Smith, J. K., & Jaser, S. S. (2004). Temperament, stress reactivity, and coping: Implications for depression in childhood and adolescence. *Journal of Clinical Child and Adolescent Psychology*, 33, 21–31. [https://doi.org/10.1207/S15374424JCCP3301\\_3](https://doi.org/10.1207/S15374424JCCP3301_3)
- Compas, B. E., Connor-Smith, J. K., Saltzman, H., & Wadsworth, M. (2001). Coping with stress during childhood and adolescence: Progress, problems, and potential. *Psychological Bulletin*, 127(1), 87–127.
- Currie, C. et al (Eds.). (2004). Young people's health in context. Health behaviour in schoolaged children: A WHO cross-national collaborative study (HBSC international report from the 2001/02 survey). Health Policy for Children and Adolescents, 4 (World Health Organization).
- Deci, E. L., La Guardia, J. G., Moller, A. C., Scheiner, M. J., & Ryan, R. M. (2006). On the benefits of giving as well as receiving autonomy support: Mutuality in close friendships. *Personality and Social Psychology Bulletin*, 32, 313–327.
- Deci, E. L., & Ryan, R. M. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11, 227–268.
- Endler, N. S., & Parker, J.-D.-A. (1990). *Coping Inventory for Stressful Situations (CISS): Manual*. Toronto, ON: Multi-Health Systems.
- Folkman, S., & Lazarus, R. S. (1980). An analysis of coping in a middle aged community sample. *Journal of Health and Social Behavior*, 21, 219–239. <https://doi.org/10.2307/2136617>
- Folkman, S., & Lazarus, R. S. (1985). If it changes, it must be a process: A study of emotion and coping during three stages of a college examination. *Journal of Personality and Social Psychology*, 48, 150–170.
- Fritz, M. S., & MacKinnon, D. P. (2007). Required sample size to detect the mediated effect. *Psychological Science*, 18(3), 233–239. <https://doi.org/10.1111/j.1467-9280.2007.01882.x>
- George, D., & Mallery, P. (2003). *SPSS for Windows step by step: A simple guide and reference*. 11.0 update (4th ed.). Boston, MA: Allyn & Bacon.

- Gerónimo, E. M., Schoeps, K., & Montoya-Castilla, I. (2019). Attachment styles and well-being in adolescents: How does emotional development affect this relationship? *International Journal of Environmental Research and Public Health*, 16, 2554.
- Giles, D. C., & Maltby, J. (2004). The role of media figures in adolescent development: Relations between autonomy, attachment, and interest in celebrities. *Personality and Individual Differences*, 36, 813–822. [https://doi.org/10.1016/S0191-8869\(03\)00154-5](https://doi.org/10.1016/S0191-8869(03)00154-5)
- Glazebrook, K., Townsend, E., & Sayal, K. (2016). Do coping strategies mediate the relationship between parental attachment and self-harm in young people? *Archives of Suicide Research*, 20, 205–218. <https://doi.org/10.1080/13811118.2015.1004495>
- Glazer, S. (2006). Social support across cultures. *International Journal of Intercultural Relations*, 30, 605–622. <https://doi.org/10.1016/j.ijintrel.2005.01.013>
- Greene, A., Adams-Price, C., & Greene, A. (1990). Adolescents' secondary attachments to celebrity figures. *Sex Role*, 23, 335–347. <https://doi.org/10.1007/BF00289224>
- Guo, C., Tomson, G., Keller, C., & Söderqvist, F. (2018). Prevalence and correlates of positive mental health in Chinese adolescents. *BMC Public Health*, 18, 263. <https://doi.org/10.1186/s12889-018-5133-2>
- Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression based approach*. New York, NY: Guilford Press.
- Hayes, A. F. (2015). An index and test of linear moderated mediation. *Multivariate Behavioral Research*, 50, 1–22. <https://doi.org/10.1080/00273171.2014.962683>
- Holmbeck, G., Li, S., Schurman, J., Friedman, D., & Coakley, R. (2002). Collecting and managing multisource and multimethod data in studies of pediatric populations. *Journal of Pediatric Psychology*, 27(1), 5–18. <https://doi.org/10.1093/jpepsy/27.1.5>
- Holt, N., Hoar, S., & Fraser, S. (2005). How does coping change with development? A review of childhood and adolescence sport coping research. *European Journal of Sport Science*, 5, 25–39. <https://doi.org/10.1080/17461390500076915>
- Khalid, A., Qadir, F., Chan, W., & Schwannauer, M. (2017). Parental bonding and adolescents' depressive and anxious symptoms in Pakistan. *Journal of Affective Disorders*, 28, 60–67.
- Khalid, A., Qadir, F., Chan, W., & Schwannauer, M. (2019). Adolescents' mental health and well-being in developing countries: A cross-sectional survey from Pakistan. *Journal of Mental Health*, 28(4), 389–396. <https://doi.org/10.1080/09638237.2018.152191>
- Kieling, C., & Rohde, L. A. (2012). Child and adolescent mental health research across the globe. *Journal of the American Academy of Child & Adolescent Psychiatry*, 51, 945–947. <https://doi.org/10.1016/j.jaac.2012.07.002>
- Koepke, S., & Denissen, J. (2012). Dynamics of identity development and separation–individuation in parent–child relationships 233 during adolescence and emerging adulthood – A conceptual integration. *Developmental Review*, 32(1), 67–88. <https://doi.org/10.1016/j.dr.2012.01.001>
- La-Guardia, J.-G., & Patrick, H. (2008). Self-Determination Theory as a Fundamental Theory of Close Relationships. *Canadian Psychology*, 49, 201–209. <https://doi.org/10.1037/a0012760>
- La-Guardia, J., Ryan, R., Couchman, C., & Deci, E. (2000). Within-person variation in security of Attachment: A self-determination theory perspective on attachment, need fulfillment, and well-being. *Journal of Personality and Social Psychology*, 79, 367–384. <https://doi.org/10.1037/0022-3514.79.3.367>
- Lazarus, R. S. (1999). *Stress and emotion: A new synthesis*. New York, NY: Springer.
- Lazarus, R., & Folkman, S. (1984). *Stress, appraisal and coping*. New York, NY: Springer Publishing Company.
- Li, C., Liu, Q., Hu, T., & Jin, X. (2017). Adapting the short form of the Coping Inventory for Stressful Situations into Chinese. *Neuropsychiatric Disease and Treatment*, 13, 1669–1675.
- Li, J. B., Dellecchio, E., Miconi, D., Salcuni, S., & Di-Riso, D. (2014). Parental attachment among Chinese, Italian, and Costa Rican adolescents: A cross-cultural study. *Personality and Individual Differences*, 71, 118–123. <https://doi.org/10.1016/j.paid.2014.07.036>
- Lopez, A., Mathers, C., Ezzati, M., Jamison, D., & Murray, C. (2006). *Global burden of disease and risk factors*. Washington, DC: Oxford University Press and the World Bank.

- Mallinckrodt, B. (2000). Attachment, social competencies, social support and interpersonal process in psychotherapy. *Psychotherapy Research*, 10, 239–266. <https://doi.org/10.1093/ptr/10.3.239>
- Malti, T., Noam, G., Beelmann, A., & Sommer, S. (2016). Toward dynamic adaptation of psychological interventions for child and adolescent development and mental health. *Journal of Clinical Child & Adolescent Psychology*, 45, 827–836. <https://doi.org/10.1080/15374416.2016.1239539>
- Matsumoto, D., Yoo, S. H., & Nakagawa, S. (2008). Culture, emotion regulation, and adjustment. *Journal of Personality and Social Psychology*, 94, 925–937. <https://doi.org/10.1037/0022-3514.94.6.925>
- Moller, N. P., McCarthy, C. J., & Fouladi, R. T. (2002). Earned attachment security: Its relationship to coping resources and stress symptoms among college students following relationship breakup. *Journal of College Student Development*, 43, 213–230.
- Mumford, I. A. K., Tareen, M. A. Z., Bajwa, M. R., & Bhatti, R. (1991). The translation and evaluation of an Urdu version of the Hospital Anxiety and Depression Scale. *Acta Psychiatrica Scand.*, 83, 81–88. <https://doi.org/10.1111/j.1600-0447.1991.tb07370.x>
- Ntoumanis, N., Edmunds, J., & Duda, J. L. (2009). Understanding the coping process from a self-determination theory perspective. *British Journal of Health Psychology*, 14, 249–260. <https://doi.org/10.1348/135910708X349352>
- Patrick, H., Knee, C. R., Lonsbary, C., & Canevello, A. (2007). The role of need fulfillment in relationship functioning and well-being: A self-determination theory perspective. *Journal of Personality and Social Psychology*, 92, 434–457. <https://doi.org/10.1037/0022-3514.92.3.434>
- Pereira, A. I., Barros, L., Mendonça, D., & Muris, P. (2014). The relationships among parental anxiety, parenting, and children's anxiety: the mediating effects of children's cognitive vulnerabilities. *Journal of Child and Family Studies*, 23, 399–409. <https://doi.org/10.1007/s10826-013-9767-5>
- Polanczyk, G., Salum, G., Sugaya, L., Caye, A., & Rohde, L. (2015). Annual research review: A meta-analysis of the worldwide prevalence of mental disorders in children and adolescents. *The Journal of Child Psychology and Psychiatry*, 56, 345–365. <https://doi.org/10.1111/jcpp.12381>
- Qidwai, W., Ishaque, S., Shah, S., & Rahim, M. (2010). Adolescent lifestyle and behaviour: A survey from a developing country. *PLoS ONE*, 5(9) e12914. <https://doi.org/10.1371/journal.pone.0012914>
- Roberts, K. A. (2007). Relationship attachment and the behaviour of fans towards celebrities. *Applied Psychology in Criminal Justice*, 3(1), 54–74.
- Rosmidar (2017). *Secondary attachment figure and students selfactualization a case study of Mahad Mawaridussalam 249 Medan*. A dissertation submitted for Masters. Educational Psychology, International Islamic University Malaysia.
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55, 68–78. <https://doi.org/10.1037/0003-066X.55.1.68>
- Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology*, 57, 1069–1081. <https://doi.org/10.1037/0022-3514.57.6.1069>
- Ryff, C. D., & Keyes, C. L. (1995). The structure of psychological well-being revisited. *Journal of Personality and Social Psychology*, 69, 719–727. <https://doi.org/10.1037/0022-3514.69.4.719>
- Shah, M., & Amjad, S. (2011). Cultural diversity in Pakistan: National vs provincial mediterranean. *Journal of Social Sciences*, 2, 331–344.
- Shaheen, F., & Alam, M. S. (2010). Psychological distress and its relation to attributional styles and coping strategies among adolescents. *Journal of the Indian Academy of Applied Psychology (MJSS)*, 36, 231–238.
- Shaver, P. R., & Mikulincer, M. (2004). What do self-report attachment measures assess? In W. S. Rholes & J. A. Simpson (Eds.), *Adult attachment: Theory, research, and clinical implications* (pp. 17–54). New York, NY: Guilford Press.
- Shirvanian, N., & Michael, T. (2017). Implementation of attachment theory into early childhood settings. *International Education Journal: Comparison Perspectives*, 16, 97–115.



- Tang, J.-S., Tse, S.-K., Davidson, L., & Cheng, P. (2018). Mental health service user participation in Chinese culture: A model of independence or interdependence? *Journal of Mental Health*, 27(4), 345–351. <https://doi.org/10.1080/09638237.2017.1417546>
- The Global Burden of Disease Child and Adolescent Health Collaboration. (2017). Child and adolescent health from 1990 to 2015: findings from the global burden of diseases, injuries, and risk factors 2015 study. *JAMA Pediatrics*, 171(6), 573–592.
- The World Bank List of Economics. (2018). Retrieved from <https://about.muse.jhu.edu/media/uploads/wdi2018.pdf>
- Van Droogenbroeck, F., Spruyt, B., & Keppens, G. (2018). Gender differences in mental health problems among adolescents and the role of social support: results from the Belgian health interview surveys 2008 and 2013. *BMC Psychiatry*, 18(1), 6. <https://doi.org/10.1186/s12888-018-1591-4>
- Van Roekel, E., Engels, R. C. M. E., Verhagen, M., Goossens, L., & Scholte, R. H. J. (2011). Parental depressive feelings, parental support, and the serotonin transporter gene as predictors of adolescent depressive feelings: A latent growth curve analysis. *Journal of Youth and Adolescence*, 40(4), 453–462. <https://doi.org/10.1007/s10964-010-9560-3>
- Van-Ryzin, M. J., Carlson, E. A., & Sroufe, L. A. (2011). Attachment discontinuity in a highrisk sample. *Attachment Human Development*, 13(4), 381–401. <https://doi.org/10.1080/14616734.2011.584403>
- Vescovelli, F., Albieri, E., & Ruini, C. (2014). Self-rated and observer-rated measures of well-being and distress in adolescence: an exploratory study. *Springer plus*, 3, 490. <https://doi.org/10.1186/2193-1801-3-490>
- Visani, D., Albieri, E., Offidani, E., Ottolini, F., Tomba, E., & Ruini, C. (2011). Gender differences in psychological well-being and distress during adolescence. In I. Brdar (Ed.), *The human pursuit of well-being: A cultural approach* (p. 6570). New York, NY: Springer Science + Business Media.
- Wei, M., Heppner, P., & Mallinckrodt, B. (2003). Perceived coping as a mediator between attachment and psychological distress: A structural equation modeling approach. *Journal of Counseling Psychology*, 50, 438–447. <https://doi.org/10.1037/0022-0167.50.4.438>
- Wei, M., Russell, D. W., Mallinckrodt, B., & Vogel, D. L. (2007). The Experiences in Close Relationship Scale (ECR)-Short Form: Reliability, validity, and factor structure. *Journal of Personality Assessment*, 88, 187–204. <https://doi.org/10.1080/00223890701268041>
- White, D., Leach, C., Sims, R., Atkinson, M., & Cottrell, D. (1999). Validation of the Hospital Anxiety and Depression Scale for use with adolescents. *British Journal of Psychiatry*, 175(5), 452–454. <https://doi.org/10.1192/bjp.175.5.452>
- Yeh, C. J., Arora, A. K., & Wu, K. A. (2006). A new theoretical model of collectivistic coping. In P. T. P. Wong & L. C. J. Wong (Eds.), *Handbook of multicultural perspectives on stress and coping* (pp. 55–72). New York, NY: Springer.
- Zigmond, A. S., & Snaith, R. P. (1983). The Hospital Anxiety and Depression Scale. *Acta Psychiatrica Scandinavica*, 67, 361–370. <https://doi.org/10.1111/j.1600-0447.1983.tb09716.x>
- Zimmer-Gembeck, M. J., Ducat, W., Clear, S., Mastro, S., & Van-Petegem, S. (2018). Parent child relationships and romantic development: A review and argument for research on autonomy supportive parenting. In B. Soenens, M. Vansteenckiste & S. Van Petegem (Eds.), *The meaning and role of autonomy in adolescent development: Toward conceptual clarity* (pp. 168–192). New York, NY: Routledge/Psychology Press.

Received 18 October 2019; revised version received 18 March 2020